

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Apparatus for Lining Receptacles with Paste to form Cases Preparatory to the Introduction of a Filling in the production of "Open" Tarts and Analogous Confectionery

5 We, BURGESS ENGINEERING (STOKE-ON-TRENT) LIMITED of Fields Road, Alsager, Stoke-on-Trent, in the County of Cheshire, a Company incorporated under the Laws of the United Kingdom of Great Britain and Northern Ireland, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention has reference to apparatus for lining receptacles with paste to form cases preparatory to the introduction of a filling in the production of 'open' tarts and analogous confectionery.

15 In connection with the production of open tarts and analogous confectionery it is known to employ a press type of apparatus incorporating a die which is adapted to be caused to descend on to a disc or sheet of predetermined size or on to a mass of paste of predetermined weight, which has been placed on top of or in a receptacle or mould for causing the paste to line the receptacle or mould to form a case preparatory to the introduction of filling but with existing apparatus for this purpose so far as is known to us, in the event of an excess quantity of paste being pressed into the receptacle or mould the excess paste is squeezed outwardly between the receptacle or mould and the die as it descends whereby a wastage of paste is occasioned.

20 The present invention has for its object to provide apparatus for lining receptacles or moulds with paste to form cases preparatory to the introduction of a filling in the production of open tarts and analogous confectionery which avoid wastage of paste and

ensures that in the case where excess paste is present this is embodied in the lining or case without wastage.

Accordingly the invention consists of apparatus for lining receptacles or moulds with paste for forming cases preparatory to the introduction of a filling in the production of 'open' tarts and analogous confectionery embodying a press device or a battery of press devices which or each press device of which comprises a reciprocable die head, a sealing sleeve surrounding said die head and which is reciprocable therewith but which is adapted to be capable of a limited axial movement relatively to the die head in opposition to resilient pressure exerting means and an annular member concentric with and surrounding or partially surrounding the die head and which is displaceable within the sealing sleeve aforesaid in opposition to resilient pressure exerting means whereby in the event of excess paste being present when the die head descends and after the sealing sleeve has attained a sealing position the excess paste exerts pressure on the said annular member to effect an upward displacement of the said annular member so that the excess paste is embodied in the lining or case without waste.

The invention also consists of apparatus for lining receptacles or moulds with paste for forming cases preparatory to the introduction of a filling in the production of 'open' tarts and analogous confectionery embodying a press device or battery of press devices which or each press device of which incorporates a tubular member which is attached to and which depends from a means to which a reciprocatory motion may be imparted, a sealing sleeve surrounding said

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5 tubular member and in sliding association therewith, spring means which tends to urge the sealing sleeve axially away from the tubular member but which serves to interconnect the sealing sleeve with the tubular member so that the sealing sleeve may partake of the reciprocatory movement of the tubular member, an annular member slidably mounted on the lower portion of the tubular member, springs means which tends to oppose upward movement of the annular member on the tubular member but which serves also to cause the said annular member to partake of the reciprocatory movement of the tubular member and of the sealing sleeve, and a die head carried by the annular member.

20 The invention further resides in apparatus for lining receptacles or moulds with paste for forming cases preparatory to the introduction of filling in the production of open tarts and analogous confectionery substantially as will be described hereinafter.

25 An embodiment of the invention will now be described with particular reference to the accompanying drawings which illustrate the invention as applied to the production of linings or cases for 'open' tarts in which the linings or cases are to be formed in trays incorporating 54 receptacles or moulds arranged in 9 rows of 6 in each row and in which the paste to form the linings or cases is supplied in the form of 'lumps' of a predetermined size produced by apparatus of known kind, which are required to be pressed into contact with the receptacles or moulds by a press type of apparatus.

In the drawings:—

40 Figure 1 is a diagrammatic view in side elevation of a press type of apparatus in accordance with the invention with the top tools of the apparatus in their fully raised position and the bottom tools of the said apparatus in their lowermost position,

45 Figure 2 is a front view of the apparatus illustrated in Figure 1 looking in the direction of the arrow in the said Figure and with parts of the apparatus as seen in Figure 1 omitted for the sake of clearness,

50 Figure 3 is a view mainly in section but partly in elevation and on an enlarged scale of one of the presses incorporated in the apparatus illustrated in Figures 1 and 2 again with the top tool in the fully raised position and the lower tool in the lowermost position,

55 Figure 4 is a cross section taken on the plane indicated by the line 4—4 in Figure 3 looking in the direction of the arrows to the said line,

60 Figure 5 is a cross section taken on the plane indicated by the line 5—5 in Figure 3 looking in the direction of the arrows to the said line,

65 Figures 6, 7 and 8 are views partly in sec-

tion and partly in elevation illustrating successive stages in the operation of the apparatus illustrated in Figures 1 to 5 in the case where the lumps of paste to be formed into linings or cases are of the correct size,

70 Figure 9 is a fragmentary view partly in elevation and on an enlarged scale illustrating the manner in which the apparatus illustrated in Figures 1 to 5 deals with cases in which the lump of paste is larger than the prescribed size.

Like numerals of reference indicate similar parts in the several views.

According to the said illustrated embodiment of the invention there is located at the station where the lumps of paste 20 are to be pressed into the receptacles or moulds 211 in trays 21 to form linings or cases 201 a battery of six presses incorporating sets of top and bottom tools denoted collectively by the reference letters A and B respectively which are arranged transversely relative to the line of approach of the trays 21. Each set of tools A, B is carried by a common bridge piece 22, 23 respectively to which a reciprocating motion is adapted to be imparted in a manner itself known.

75 The top tool A of each press incorporates a vertical length of tube 24 which is fixed to and which depends from the relevant bridge piece 22. Displaceably mounted on the lower end of each length of tube 24 is a die head 25 for pressing the lump of paste 20 into the relevant receptacle or mould 211 for lining the receptacle or mould for forming a lining or case 201 preparatory to the introduction of the filling.

80 Each length of tube 24 is provided with an intermediate annular flange 241 to which is attached in a manner to be described hereinafter an outer cylindrical sleeve 26 incorporating in the upper portion thereof three symmetrically arranged cylindrical housings 261 for springs 262 which serve as a means of attachment of the sleeve 26 to the flange 241 and which permit a limited axial displacement of the sleeve 26 relatively to the said flange 241 and the tube 24 for a purpose to be referred to hereinafter. The lower end of the sleeve 26 is adapted to be caused to press on the marginal portion bounding a receptacle or mould 211 to serve as a seal, see Figures 7, 8 and 9.

85 Displaceably mounted within the lower portion of the sleeve 26 aforesaid hereinafter termed the sealing sleeve 26 and concentric with and partially surrounding the die head 25 is an annular block 27 the acting face of which is formed with flutes 271 for impressing the usual decorative fluted edge around the top of the lining or case 201 to be produced. This annular block 27 is screwed to the die head 25 and is carried at the lower ends of rods 28 which are located within and slidable within cylindrical housings 281

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arranged symmetrically in the upper portion of the sealing sleeve 26 and alternating with the cylindrical housings 261 aforesaid. Disposed around the rods 28 are coil springs 29 the upper ends of which abut the undersurface of the annular flange 241, which springs 29 tend to press the annular block 27 cutwardly and to transmit the downward thrust of the flange 241 to the die head 25. Pins 282 passing through the upper end portions of the rods 28 prevent complete displacement of the said annular block 27 from within the sealing sleeve 26.

Located within the centre of the die head 25 is an automatic spring loaded mushroom headed type of valve 30 the said valve 30 controlling ports 301 communicating with a space 243 on the inner side of the valve head which in turn communicates by way of passages 244 in each tube 24 for the escape of air so as to avoid suction action when a die head 25 recedes after a pressing operation.

Disposed within the bore of each tube 24 is an electric cartridge heater 31 for heating the die head 25 for facilitating the pressing operation.

When the die head 25 is in the fully raised position a gap 32 exists between the lower end of the tube 24 and the presented surface of the relevant die head 25 for a purpose to be set forth hereinafter.

The bottom tool B of each press is provided with a recess 33 for the accommodation of the lower portions of the receptacles or moulds 211.

The operation of the invention is as follows:—

As each row of receptacles or moulds 211 with the respective lumps of paste 20 thereon are progressed through the gap between the top and bottom tools A and B respectively when separated the receptacles or moulds 211 in a row come below the respective die heads 25 whereupon the said die heads together with the associated components descend on to the relevant receptacles or moulds. Initially the lower tool B rises so that the lower portions of the receptacles 211 become seated in their respective recesses 33, see Figure 6, and upon the subsequent descent of the top tool A the lower ends of the sealing sleeves 26 come into contact with the marginal portions of the tray 21 surrounding the relevant row of receptacles or moulds 211 so as to form seals, the sealing pressure being obtained through the agency of the springs 262 located in the cylindrical housings 261 of the sealing sleeves 26 and which react on the annular flanges 241 of the respective tubes 24, see Figure 7.

The descent of the tubes 24, through the springs 29, causes the die heads 25 to force the lumps of paste 20 into contact with the bottom and wall of the receptacle or mould

211 to form a lining or case 201, see Figure 8.

If the lump of paste 20 is of the correct size the descent of a die head assembly 25 also causes the acting face 271 of the annular block 27 associated therewith to press on the top of the lining or case 201 to impress therein the decorative fluted effect.

In the event of an inadvertent excess of paste in a lump of paste 20 the annular block 27 is forced upwardly to close the gap 32 so as to provide space for the excess paste and simultaneously to form the decorative fluted top and to embody the excess paste in the wall of the lining or case 201 so that waste is avoided, see Figure 9.

As the die heads 25 recede after the pressing operation the respective automatic valves 30 open to eliminate possibility of suction effects tending to withdraw the linings or cases from their receptacles or moulds.

As the die heads 25 recede a short blast of compressed air is introduced by way of the passages 244 to assist the break away of the die heads 25 from the formed lining or case 201 the timing of the said air blast varying with the form of the lining or case 201 to be produced.

The tray 21 with the lining or cases 201 is then progressed to a filling station, not shown, where the filling is deposited into the lining or cases 201 formed as aforesaid in readiness for subsequent transfer to an oven.

It will be understood that the invention may be applied to the formation of linings or cases from discs or sheets of paste of a predetermined size deposited in the receptacles or moulds.

WHAT WE CLAIM IS:—

1. Apparatus for lining receptacles or moulds with paste for forming cases preparatory to the introduction of a filling in the production of 'open' tarts and analogous confectionery embodying a press device or a battery of press devices which or each press device of which comprises a reciprocable die head, a sealing sleeve surrounding said die head and which is reciprocable therewith but which is adapted to be capable of a limited axial movement relatively to the die head in opposition to resilient pressure exerting means and an annular member concentric with and surrounding or partially surrounding the die head and which is displaceable within the sealing sleeve aforesaid in opposition to resilient pressure exerting means whereby in the event of excess paste being present when the die head descends and after the sealing sleeve has attained a sealing position the excess paste exerts pressure on the said annular member to effect an upward displacement of the said annular member so that the excess paste is embodied in the lining or case without waste.

2. Apparatus for lining receptacles or

- moulds with paste for forming cases preparatory to the introduction of a filling in the production of 'open' tarts and analogous confectionery embodying a press device or
- 5 battery of press devices which or each press device of which incorporates a tubular member which is attached to and which depends from a means to which a reciprocatory motion may be imparted, a sealing sleeve
- 10 surrounding said tubular member and in sliding association therewith, spring means which tends to urge the sealing sleeve axially away from the tubular member but which serves to interconnect the sealing sleeve with the
- 15 tubular member so that the sealing sleeve may partake of the reciprocatory movement of the tubular member, an annular member slidably mounted on the lower portion of the tubular member, spring means which
- 20 tends to oppose upward movement of the annular member on the tubular member but which serves also to cause the said annular member to partake of the reciprocatory movement of the tubular member and of the sealing sleeve, and a die head carried
- 25 by the annular member.
3. Apparatus as claimed in claim 2 in which each of the spring means is located within housings formed in the sealing sleeve.
- 30 4. Apparatus as claimed in claim 2 in which an automatically operating valve is mounted within the die head which tends to open when the die head recedes after the performance of a lining operation.
- 35 5. Apparatus as claimed in claim 2 in which the annular member is provided at the lower end with an annular fluted surface.
- 40 6. Apparatus as claimed in claim 2 in which a space normally exists between the lower end of the tubular member and the presented surface of the die head which
- serve to allow additional space to be available when dealing with paste in excess of a prescribed size or amount.
7. Apparatus as claimed in claim 2 in 45 which an electrically heating cartridge is located within the lower portion of the tubular member.
8. Apparatus as claimed in claim 2 in 50 which passages are provided in the tubular member for the escape of air when necessary and for the introduction of a compressed air blast when required.
9. Apparatus as claimed in any one of the preceding claims 1 to 8 in which each 55 press device or each press device of a battery of press devices embodies an upper tool which incorporates the die head and an oppositely acting reciprocable lower tool which serves to accommodate part of the recep-
- 60 tacles or moulds to be lined.
10. Apparatus as claimed in claim 9 in which provision is made for progressing the receptacles or moulds to be lined through the gap between the upper and lower tools 65 when these are separated.
11. Apparatus as claimed in claim 9 in which the receptacles or moulds are formed in a tray.
12. Apparatus for lining receptacles or 70 moulds with paste for forming cases preparatory to the introduction of a filling in the production of open tarts and analogous confectionery constructed and adapted for operation substantially as described herein 75 with reference to the accompanying drawings.

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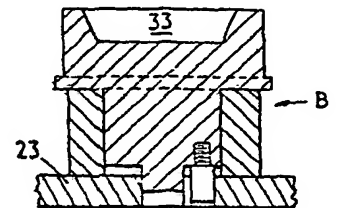
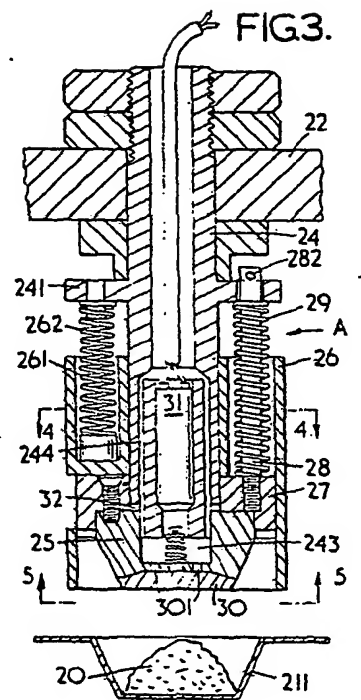
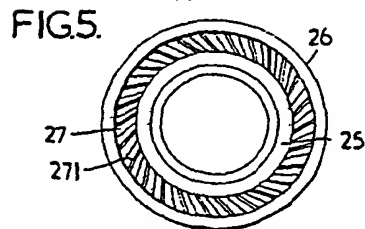
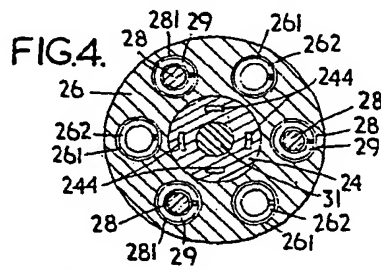
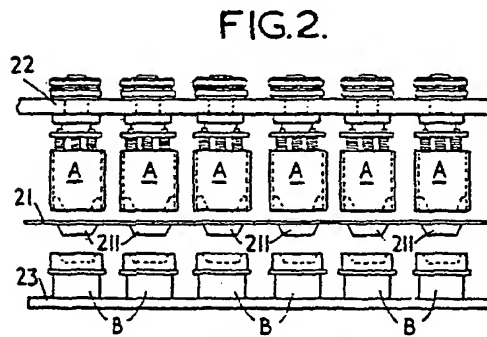
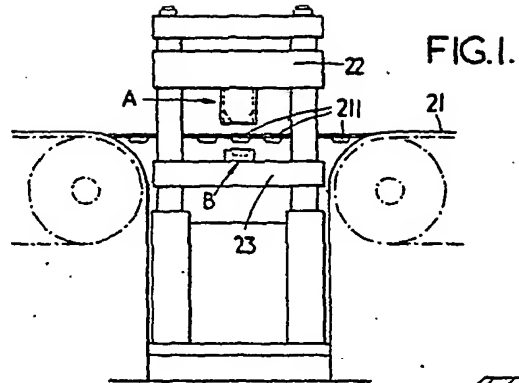


FIG.6.

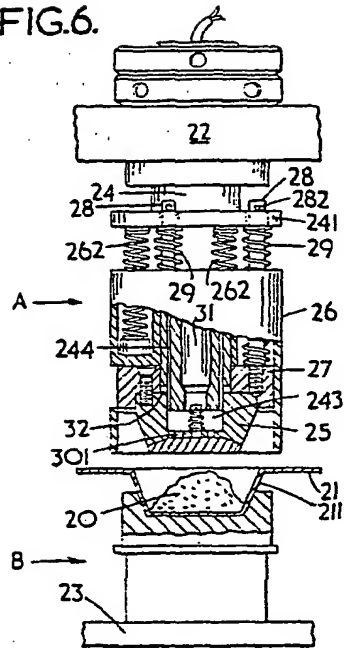


FIG.7.

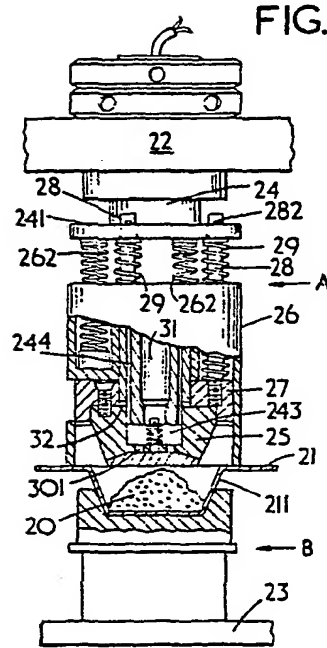


FIG.3.

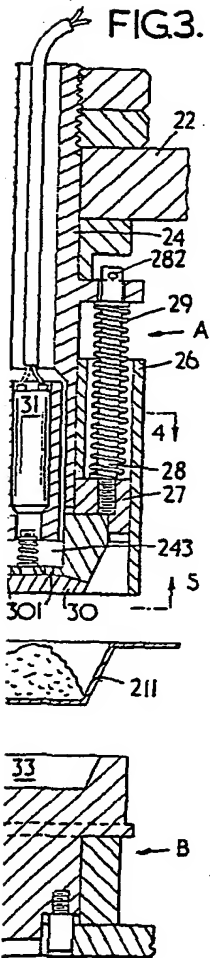


FIG.8.

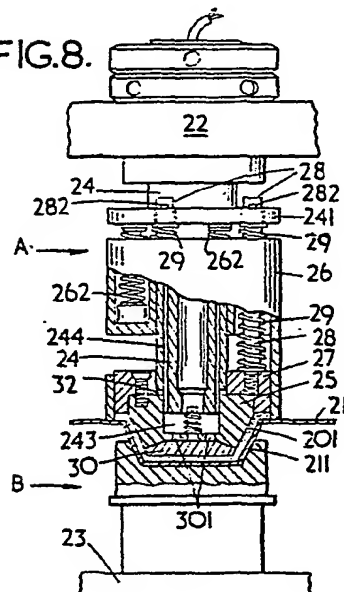
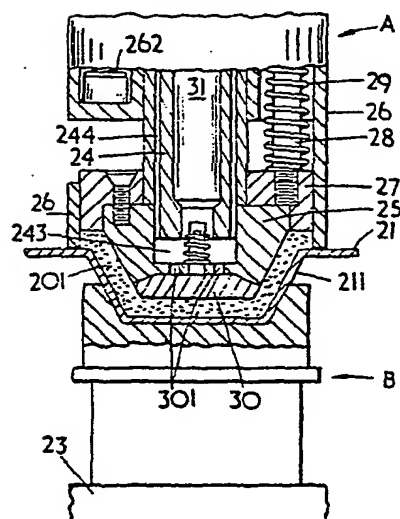


FIG.9.



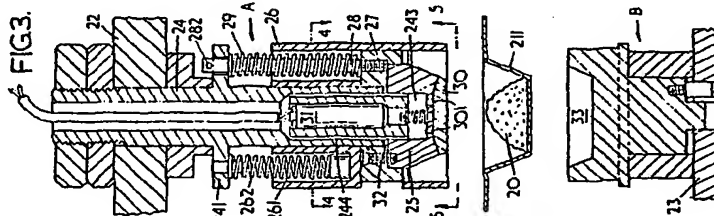
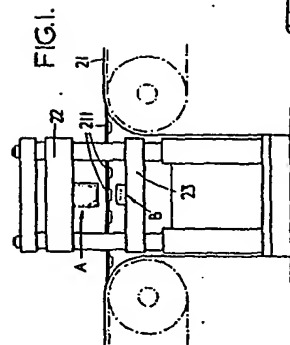


FIG. 2.

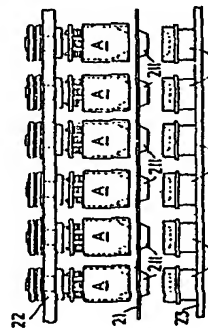


FIG. 5.

